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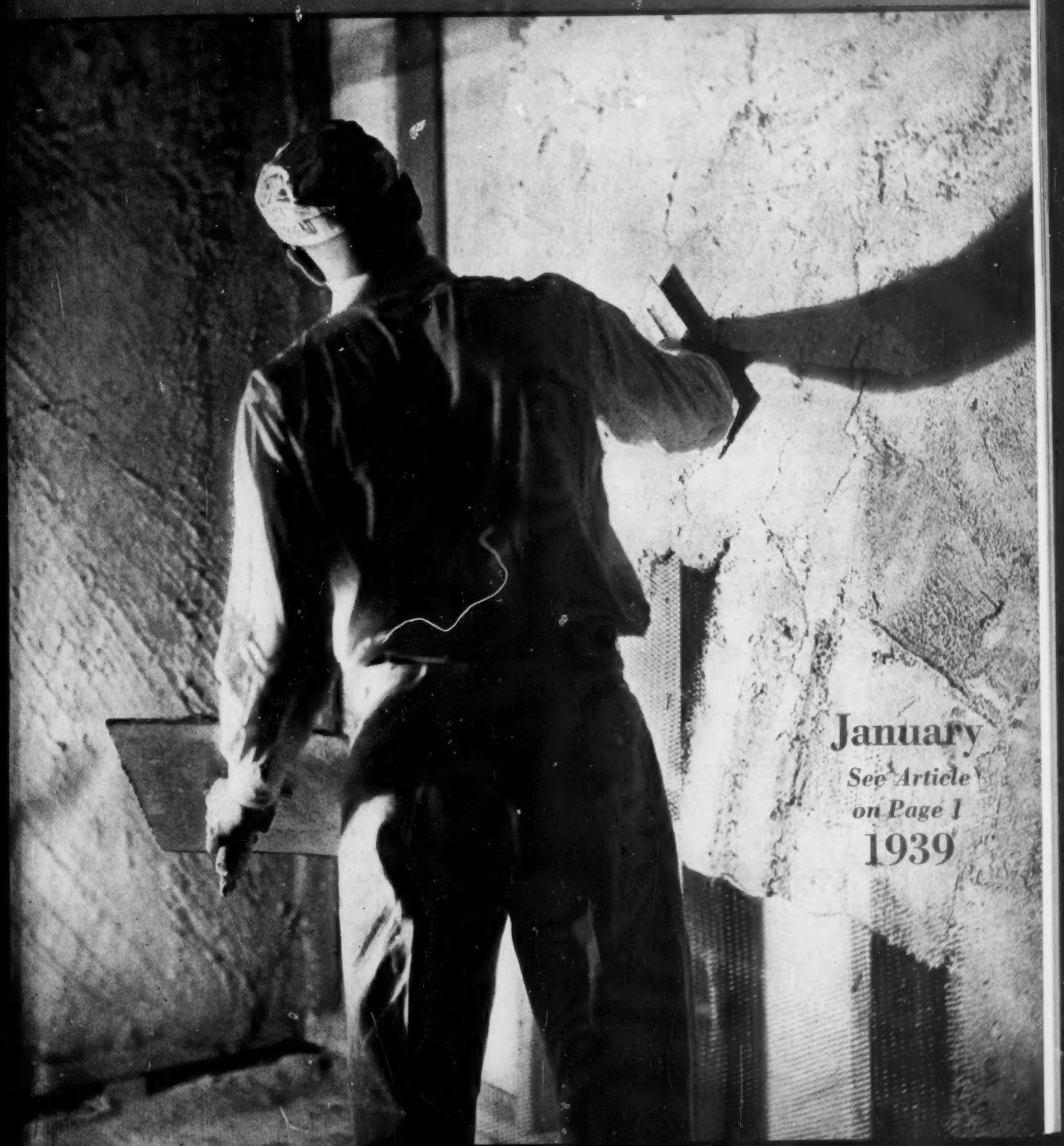
Industrial Standardization

and Commercial Standards Monthly



January

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1939

Industrial Cooperation for Standards

IF the American Institute of Electrical Engineers develops standards for insulated wires and cables, and the Association of American Railroads develops standards for insulated wires and cables, and the Telephone Group develops standards for insulated wires and cables, you have three separate sets of industrial standards each taking care of the needs of a particular group.

But if these groups get together with representatives of the 16 other groups making, using, or selling wire and cable and pool their technical knowledge and experience, working together through the American Standards Association as national clearing-house, then you get one set of standards for insulated wires and cables, national in scope, and many times as effective as the many industry standards.

During the year just passed, three thousand men have taken part in the standards and safety code work of the American Standards Association, pooling the experience of their separate groups in order to develop standards that will transcend industry lines. These men are engineers, trained technicians, company executives, public health officials, and experts in every line of industrial endeavor. They represent nearly 700 trade associations, technical societies, and departments of the federal, state, or local government on ASA committees, each providing the link with his own group that makes standardization on a national scale possible.

These men, during the year, have worked on 142 national standardization projects. Meeting in different cities, under the technical leadership of many different organizations, some of these men have never been inside the ASA offices; but the results of their work come to the American Standards Association for final approval. These standards then join the ever growing group of efficient business tools known as American Standards.

Through the fabric of national standardization work is woven the practical experience of these 3,000 committee members scattered throughout industry, bringing to the problems of standardization all the slants and requirements of their own particular trades and jobs.

In looking back over the 21 new American Standards approved during 1938 and the 24 American Standards revised, one recognizes how much the work of these 3,000 committee men and the cooperation of the 700 organizations they represent have meant to industrial standardization.

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RUTH E. MASON, *Editor*

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Our Front Cover: Gypsum plaster applied over metal lath. Courtesy United States Gypsum Company.

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ASA

Standardization is dynamic, not static. It means not to stand still, but to move forward together.

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ASA Approves Standard Specifications For Gypsum Plastering and Lathing

First standard in proposed series gives "yardstick" for obtaining quality plastering, including materials used, mixing, and application of plastering and lathing

by

H. J. Schweim[1]

General Manager,
Gypsum Association

THE need for American Standard specifications for plastering has long been recognized.

While the gypsum industry had a standard specification for gypsum plastering for many years, it was realized that a more comprehensive specification could be obtained through the cooperative effort of the producers of the material, the crafts involved in its application, general interests, and the consumer. Such a specification is now available in the new American Standard Specifications for Gypsum Plastering and Lathing.

This specification will assist greatly in obtaining quality plastering by providing a "yardstick" to measure the quality of materials entering into plastering and lathing, and the mixing and application of plastering and lathing materials.

These specifications were approved as an American Standard by the ASA on September 29, 1938. The idea of preparing such a specification, however, originated about 19 years previously. As a matter of fact, in 1919 Committee C-11 on Gypsum of the American Society for Testing Materials prepared specifications for gypsum plasters, including application, workmanship, and recommended plastering practices, which they proposed as Tentative Specifications for Gypsum Plasters. However, on vote at the annual meeting of the ASTM in June of that year, these specifications were accepted simply as a report under the title "Tentative Report on Gypsum Plasters," with the understanding that the Executive Committee of the Society would decide the question of including in an ASTM specification such matters as workmanship and recommended plastering practices. The Executive Committee's decision upheld the policy of including only standardization of specifications and methods of testing. Consequently, it was impossible at the time to obtain an ASTM standard specification for plaster which would include application, workmanship, etc.

The standard specification for gypsum plastering was, therefore, held in abeyance until 1927. It was revived at that time due to a request on the part of Committee C-7 on Lime of the ASTM that it be permitted to prepare specifications covering lime plastering. The Executive Committee of the Society reaffirmed their previous stand but declared their willingness to have the Society cooperate with other organizations in sponsoring specifications for workmanship and practices involved in plastering.

Ask ASA to Help

As a result, it was decided in 1929 to have such specifications prepared for gypsum, lime, and portland cement plasters through a sectional committee of the American Standards Association, with the American Society for Testing Materials

[1]Representative of the American Society for Testing Materials on the Sectional Committee on Specifications for Plastering (A42), working under the procedure of the American Standards Association.

and the American Institute of Architects as joint sponsors.

The Sectional Committee on Specifications for Plastering (A42) held its organization meeting on February 24, 1930, at Philadelphia. By vote, the scope of the committee included specifications for interior cement, lime, and gypsum plastering and for exterior plastering (stucco). Four subcommittees were appointed at the meeting to prepare specifications on gypsum, lime, and cement plastering and lathing.

First Draft in 1933

The first draft of a proposed specification covering all types of plastering and lathing was issued by the committee in December, 1933. This was prepared for a Coordinating Committee which had been set up to coordinate the work of the various subcommittees. The second draft of these specifications was issued in February, 1935.

At a meeting of the sectional committee in July, 1936, it was decided to subdivide the proposed standard into individual specifications for the various types of plastering (gypsum, lime, portland cement) and for lathing. Since the specifications for gypsum plastering and lathing were more nearly completed, it was decided to finish these specifications first. The first draft of the specifications for gypsum plastering and lathing was issued to the committee in January, 1937. Three more drafts were prepared before the final draft was approved by the ASA.

The specifications are divided into two chapters, the first covers gypsum plaster, and the second, lathing. Chapter I is divided into 10 sections:

General Provisions;
Scope of Work;
Materials;
Plaster Mixes;
Mixing and Preparation;
Finishes;
Thickness of Plaster;
Preparation for Plastering;
Application and
Acoustical and Other Special Purpose Plasters.

Preceding the plastering specification are some general notes on plastering calling attention to the use of the best practices, with emphasis on those practices which have been found to result in inferior grades of plastering. Of particular importance is the use of clean plastering tools and water; that sand must be well graded from fine to coarse; that too much sand weakens the plaster.

The subject of proper drying of plaster, which is so important in obtaining a good job, is covered in the following comprehensive statement:

"A portion of the water used for mixing plaster is necessary for the chemical reaction which sets and hardens plaster. Therefore, plaster must not be permitted to dry out before setting has taken place. It must be protected from blasts of wind and from drying unevenly or too rapidly. If glazed sash are not in place, and it is necessary to enclose building, exterior openings of building should be screened with cheesecloth, or similar material. In cold, damp, or rainy weather, properly regulated heat must be provided, but precautions must be taken against too rapid drying before set has occurred. As soon as the plaster

The walls and ceilings in this room are of gypsum plaster, over gypsum lath on the inside of the exterior walls, gypsum tile partitions, and metal lath ceilings

Courtesy U. S. Gypsum Co.

has set, free circulation of air shall be provided to avoid sweat-outs. Continue heating after plaster has set, to insure as rapid drying as possible. Plaster must not be allowed to freeze before it has set. Alternate freezing and thawing must be avoided."

Space does not permit a complete digest of the requirements of the specification, so reference is made here to some of the important provisions.

In Section IV, Plaster Mixes, the proper proportioning of sand and gypsum neat plaster and wood-fibered plaster is given; sand is added to wood-fibered gypsum plaster only when it is applied on masonry surfaces (other than monolithic concrete) and the proportions are one part wood-fibered plaster to one part sand, by weight. The term "neat" as applied to gypsum plaster means that the material as shipped by the manufacturer does not contain sand. Sand is added at the job.

The proportion of sand to "neat" plaster for the first coat on all types of lath is two parts of sand to one part of plaster by weight. For the first coat on masonry surfaces (except monolithic concrete) and for all second coats in three-coat work, the proportion is one part "neat" plaster to not more than three parts sand by weight.

The mixing of plaster is covered in Section V. In the preparation of lime-putty used in Gypsum Lime-Putty Finish and in Keene's Cement Finish Coats, quicklime, if used, is required to be thoroughly slaked, allowed to cool, and then let stand for not less than 24 hours. Hydrated lime must be soaked for 24 hours. All lime putty is required to be kept moist until used and screened through a No. 10 sieve.

Section VII (Thicknesses of Plaster) is a very important one since adequate thicknesses of plaster are necessary to obtain strength, resist cracks, and supply fire-resistance. The thicknesses of plaster are required to be not less than the following, measured from the face of the plaster base to the finished plaster surface:

(*a*). Lath—metal lath, wire lath and wire fabric	**$\frac{3}{4}$ in. minimum**
(*b*). Lath—all other types	**$\frac{1}{2}$ in. minimum**
(*c*). Unit Masonry and Concrete Walls	**$\frac{1}{2}$ in. minimum**
(*d*). Monolithic Concrete Ceiling	**$\frac{3}{8}$ in. minimum $\frac{3}{4}$ in. maximum**

In connection with Item (d), the specification states that monolithic concrete ceiling surfaces, requiring more than $\frac{3}{8}$ in. of plaster to produce desired lines or surfaces shall have metal or wire lath attached to them. Plastering on monolithic concrete surfaces received the particular attention of the committee as indicated by the following provision applying to monolithic concrete ceilings or walls:

"Concrete surfaces which are to be plastered should be rough. The desired character of surface may be procured by using rough forms which have not been oiled or greased, or by hacking or bush-hammering the surface to be plastered after the forms are removed and before the concrete has become too hard, or by applying a dash-coat of portland cement grout."

Courtesy U. S. Gypsum Co.

Applying gypsum over perforated gypsum lath

Another important section is No. VIII having to do with the preparation for plastering. This section provides that plaster shall not be applied to surfaces containing frost; that a minimum temperature of 40 F shall be maintained in a building for an adequate period prior to application of plastering, while plastering is being done, and until it is completely dry; and that adequate, properly regulated ventilation be provided.

In the preparation of masonry surfaces, on which suction must be reduced, the masonry is required to be properly wet down immediately before plaster is applied, particularly so if wood-fibered gypsum plaster is used. Wood lath must be thoroughly wet down from 12 to 24 hours before plaster is applied and in very dry weather a second wetting is required from 1 to 3 hours before plastering. Gypsum and fiber insulation lath shall not be wet down.

Application of plastering is covered in Section

Committee to Develop Standards For Other Types of Plastering

The standard specifications for gypsum plastering described in this article are only the first in a proposed series of standards which will include work on cement plastering, for both interior and exterior use, for masonry cement stucco, and on lime plastering, as well as any other types of plastering for which specifications may be needed from time to time.

The committee which is developing these specifications, representing 19 different national organizations, is working under the administrative leadership of The American Institute of Architects and the American Society for Testing Materials. Members of the committee are:

W. R. McCornack*, American Institute of Architects, *Chairman

Theodore I. Coe*, American Institute of Architects, *Vice-Chairman

J. W. McBurney*, Member-at-Large, *Executive Secretary

F. R. Wragg*, U. S. Housing Authority, *Drafting Secretary

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American Concrete Institute, *J. C. Pearson*
Building Trades Employers' Association of New York, *F. E. Pearson*
Contracting Plasterers' International Association, *E. McDonnell*
Finishing Lime Association of Ohio, *L. E. Johnson*
Gypsum Association, *H. Z. Jones*
Insulation Board Institute, *R. T. Miller*
Metal Lath Manufacturers Association, *E. M. Lurie*
National Association of Building Owners and Managers, *C. R. Cheyney*
National Association of Real Estate Boards, *Arthur Bohnen*
National Lime Association, *John W. Stockett, Jr.*
National Lumber Manufacturers Association, *Richard C. Kimbell*
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Members-at-large, *L. E. Kern, A. O. Lynas, W. J. Lynch, J. W McBurney, J. D. McNulty, William Arthur Payne*

Copies of the American Standard Specifications for Gypsum Plastering (A42.1-1938) are available at 25 cents each. ASA Members, buying copies through the ASA office, are entitled to 20 per cent discount on all approved American Standards.

IX, referring to both base coats and finishes. Specifications are contained for applying two-coat and three-coat work, the plastering of solid partitions, and plastering on monolithic concrete. Individual provisions are contained for the application of the various finish coats.

The chapter on lathing contains specifications for gypsum lath, wood lath, fiber insulation lath, metal lath, wire lath, paper-backed wire fabric, metal accessories, and channels. Detailed specifications have been provided for constructing and erecting ceilings composed of metal hangers, runners, and cross-furring; solid plaster partitions; and metal wall furring.

Printed copies of this specification are being sent to architects, engineers, building officials, plastering contractors, and lathers and plasterers throughout the country in order that the specification will be available to all those concerned with gypsum plastering and lathing.

British Standard For Cycle Threads

The British Standards Institution has recently published a specification for British Standard Cycle Threads. This includes the basic form and the basic dimensions for bolts, nuts, nipples, spokes, and other threaded parts of cycles and motorcycles. The Standard has the designation BSI 811-1938 and may be borrowed or purchased from the American Standards Association or ordered from the British Standards Institution.

Standards for Generating Equipment Adopted in Defense Program

National Defense Power Committee announces standards as part of general program to speed up production

RECOMMENDATIONS for the standardization of steam turbine generating equipment have been adopted by the National Defense Power Committee as part of the general program of speeding up production of power production machinery, Louis Johnson, Assistant Secretary of War, announced recently.

"The adoption of these standards is expected to materially accelerate the construction and erection of generating stations to provide additional supplies of electric energy," the committee said in a statement about its action. "Definite standards of pressure, temperature, voltage, power factor and other technical features are provided for nine sizes of condensing turbines, ranging from 10,000 to 100,000 kilowatts and for eight sizes of superposed turbines ranging from 10,000 to 60,000 kilowatts.

Formerly "Tailor-Made"

"In the past, turbines and generators of these large capacities have been chiefly tailor-made jobs, built to order on special designs prepared by the utility engineers. This has meant the expenditure of a large amount of time on engineering and design for each machine and has in large part prevented the adoption of quantity methods of production.

"The subcommittee on standardization, of which Commissioner Basil Manly of the Federal Power Commission is chairman, while establishing these preferred standards, has been careful in its report to provide sufficient latitude for the modification of the standards to meet the special conditions arising in connection with the installation of new equipment in existing plants or where unusual physical conditions must be met.

"Provision is also made for the consideration of technical advances in the art. But in every case where deviation from the preferred standards is suggested the burden of proof will be upon the utility or manufacturer proposing such deviation. The committee will at all times welcome constructive suggestions from the industry."

Cases in which deviation may occur under this provision are listed by the committee:

1. The temperature of condensing water supply may require turbines designed for operation with back-pressures higher than herein provided.
2. The present availability in manufacturers' plants of turbine-generators well advanced in production points clearly to the completion and use of such equipment.
3. Duplication of a turbine-generator, not currently discontinued by the manufacturer as an active design, may expedite manufacture and installation of power facilities.
4. The manufacture and installation of turbine-generators adapted to meet essential requirements in existing stations may facilitate rapid creation of generating capacity.

John C. Parker, vice-president of the Consolidated Edison Company of New York, and member of the Board of Directors of the American Standards Association, participated in the conferences which resulted in the recommendations for the standards.

To Develop Standards For Fast Colors

A technical committee has been appointed by the National Association of Finishers of Textile Fabrics to study and recommend standards for fast colors and for different types of colors, the National Association of Finishers of Textile Fabrics announced recently. The committee will cooperate with a committee representing the manufacturers of dye stuffs, it was said.

National Safety Code for Stevedoring Needed to Cut Huge Accident Toll[1]

by

Jewell W. Swofford

Chairman, U. S. Employees' Compensation Commission

Chairman of United States Employees' Compensation Commission urges national co-operation to develop minimum safety requirements for stevedoring operations

Accidents showed increase of more than seven per cent last year

DURING the last eleven years 356,548 injuries, including 1,749 fatal injuries, have been reported to the Commission from employments under the Longshoremen's and Harbor Workers' Compensation Act.

These reports represent only the injuries to longshoremen and other harbor workers when in maritime jurisdiction, and do not include those within the purview of the State workmen's compensation laws. The number of all injuries in such employments during this period is probably more than three-fourths of a million. The need for accident prevention work in such industrial operations seems so obvious as to require no further proof.

This need must be filled in an appropriate manner. There is still the opportunity for industry, by self-regulation, to meet this need through the voluntary adoption of appropriate safety codes. How long this opportunity may last before it is closed by the alternative method of statutory regulation is conjectural. Further delay in the adoption of a code may be used as evidence of the impracticability of this method of regulation. Such contention would not be without logic, for if the industry is not able to cooperate to the extent of taking prompt action to agree upon a code, there would be little grounds for expecting it to administer such code in an acceptable manner.

I had ventured to hope that the adoption of a uniform code of minimum standards for safety in this industry might become an accomplished fact during the past year. While this hope has not been fully realized, the optimistic view appears to have been warranted, for definite progress was made during the year toward the desired goal.

Since the last annual meeting of the National Safety Council, the Maritime Association of the Port of New York appointed a committee to prepare a safety code prescribing minimum standards for accident prevention work. I am advised by the manager of the Association that the work of the committee has advanced to such an extent that it hopes to have the draft of the code completed within a few weeks. The importance of this action is evident when it is recognized that nearly 30 per cent of the injuries reported under the Longshoremen's and Harbor Workers' Compensation Act originate at the Port of New York. The addition of this important segment of the industry in support of the plan for voluntary safety codes already adopted on the Pacific Coast and by individual employers in other sections should provide the necessary impetus for the early adoption of a uniform national code.

The final attainment of this goal would then seem to be a relatively simple process. All that would remain is to agree upon the minimum to

[1]Abstract of address presented at the National Safety Congress, Marine Section, Chicago, October 11.

Photo by Charles Phelps Cushing

be required as standards of safety, appropriate facilities for the voluntary enforcement of the code, and a permanent plan for coordination of safety activities on a national scale. None of these considerations should present serious difficulties. It seems to me that all that is necessary is an exchange of views between the sectional interests and a willingness on the part of those representing these interests to compromise on minor details where compromise is necessary for the general good of the industry as a whole.

The uniform code must represent the minimum standard of safety requirements to which all sections of the stevedoring industry will subscribe. There are certain fundamentals of safe practices included in any code. The scope of the employments to be included within the code is merely a matter of agreement, which should present no difficulty. Some sectional codes may go farther than others in this respect. While it is desirable to make the code all inclusive, so far as maritime operations are concerned, it is better, in my opinion, to concentrate first upon the employments that present the greatest hazard, and if compromise is necessary, confine the code to such operations. It is better to start small and expand as progress is made in the development of procedures and in perfecting administrative detail.

The same caution is justified in planning the scope of the regulatory provisions of the code. Any code acceptable for local requirements will include safety regulations pertaining to fundamentals that are a common hazard in all stevedoring operations. By this I mean that while certain procedures in one section may differ greatly from those in another, just as the type of cargo, the climatic conditions, and the labor problems are different, there are almost unlimited injury hazards common to all, that may be minimized or removed by the same safety measures.

It is just as important a safety practice that stevedoring gear be regularly inspected and kept in proper and safe working condition in unloading cargo in New York as it is in New Orleans or San Francisco. It is just as important that the foreman, the winchdriver, and the signal man be properly trained and experienced in the important duties of these positions, if logs are to be loaded safely in Seattle or unloaded safely in Galveston or Boston. Safe ingress and egress from dock to vessel, sufficient and proper illumination of working areas, proper construction and maintenance of ship structure, regular and careful inspection of gear and equipment and proper supervision of working procedures are primary essentials of any safety program for stevedoring operations.

Nation-Wide Code Needed

All of these essentials are included in the codes I have had the opportunity to examine and they are observed by the employers who have adopted safety practices as an individual undertaking. Some codes may be in greater detail than others and some go further in the scope of operations than might possibly be necessary or desirable for

immediate adoption as a code for nationwide use. It is merely a question of selecting, from codes that have been demonstrated as practicable, those features that are common to all and restating them, where necessary, in standardized terms.

It is apparent that in order to accomplish this there must be some means for coordination of the work. I believe this requires a national committee representative of the industry and responsible to it for the adoption of the code and for the formulation and direction of the policies that are to govern its administration. As a step toward this objective, the Commission is considering the advisability of preparing a comparative analysis of the existing codes. The results of this analysis will be made available to the various groups and the individuals in the industry. The Commission hopes to follow this with a conference representing all interests for the purpose of agreeing upon a final procedure for the adoption of a uniform code and for the selection of a national committee to be responsible for directing its practical application. I believe the time has arrived for such action and the Commission will lend its full cooperation to facilitate this. It will be glad to act as a clearing house for an exchange of ideas and information and render any service in this respect consistent with its duties and responsibilities under the law.

Cooperation Essential

The Commission, however, can accomplish little in the prevention of accidents in the stevedoring industry unless there is whole-hearted cooperation from both employers and employees.

Safe working practices involve more than the use of mechanical safety devices and the perfection of operating equipment. These do not protect against accident except to a limited degree. The important factor is the human element, the personal carelessness that is all too evident in nearly all human endeavor. It is as much the obligation of the workman to observe the operating practices prescribed by a safety code as it is the obligation of the employer to meet such requirements.

It would be of little avail as an accident prevention measure to provide for the careful inspection of operating equipment if the employee whose duty it is to operate such equipment fails to do so in the manner designed to safeguard him and his co-workers against the danger of injury. I believe it is essential in this respect that there be close cooperation between employees and employer in the development of safe practices. Both have a mutual interest and the benefits that will flow from an effective accident prevention program will be shared by both. In view of this, I suggest that labor be accorded proper representation in the plans for enforcement of the code.

Committee to Represent All

I have not proposed a definite form for administration of the proposed uniform code at this time because it appears desirable to defer this until a committee representing all interests has considered the advantages of different methods. Local or regional Committees appear necessary for the purpose because our country is too large to permit the administration of a function of this kind on a national scale without incurring prohibitive costs. Moreover, the variable conditions in this industry throughout the country present special problems, the solution of which may be handled best by those personally familiar with them through local contacts. Such local or regional committees are in a better position to secure the full cooperation of employers and employees within the locality they represent.

The United States Employees' Compensation Commission will be glad to help in every possible way to serve the marine industry in this undertaking and render such assistance as may be practicable.

Purchasing Magazine Publishes Articles on Standards

A series of articles on the development and use of standards and written specifications, by Eugene Anderson, Maintenance Department Buyer for Northwestern University, is being published in *Educational Business*.

The first of the series, in the November issue, gives a general discussion of the principles and background for the development of specifications as used by Northwestern University. Mr. Anderson says:

"A standard, for this purpose, is any objective for quality, performance, endurance, appearance, coverage.

"A specification shall set forth in definite form:

(*a*). The amount and kind of work;
(*b*). The character of workmanship;
(*c*). Materials to be used;
(*d*). Results expected

"Reconcile theory with the best trade practices. Place foremost emphasis on soundness. Go the limit in investigating controversial practices."

Other articles in the series will carry a standard building contract and an outline of interior painting specifications as applied by Northwestern University.

Safety Code Correlating Committee Recommends New Projects, Revisions

The safety code work of the American Standards Association has been thoroughly reviewed during the past year, and recommendations have been made for revising existing safety codes to bring them up-to-date and for developing new codes on subjects not already covered, L. F. Adams, chairman of the Safety Code Correlating Committee, told the ASA Standards Council in December. The Committee on Scope of the SCCC has been asked to consider a list of subjects suggested by the National Safety Council on which new safety codes might be developed.

The Division of Labor Standards of the U. S. Department of Labor has been cooperating with the SCCC in suggesting the use of American Standard Safety Codes particularly in those states which have been developing new safety code programs. As a result of its work it has found that several of the codes need revising and is suggesting that action be taken on the American Standard Safety Codes for floor and wall openings, railings and toe boards; for power presses and foot and hand presses; and for woodworking plants.

New developments in industry and the length of time during which the codes have been effective caused the Safety Code Correlating Committee to recommend to the organizations which have the administrative leadership for work on these safety codes that revisions should be considered for the following:

Protection of industrial workers in foundries
Laundry machinery and operations
Logging and sawmills
Window cleaning
Textile safety code

Consideration is now being given to the possibility of developing new safety code projects for quarry operations; agricultural machinery; and for household ladders. One large distributor of household ladder equipment has stated that if national specifications for the construction of household ladders were available they would sell only equipment conforming to the specifications.

The Safety Code Correlating Committee recommended that the Standards Council approve a proposed American Standard Safety Code for Compressed Air Machinery and Equipment and of a proposed revision of the American Standard Safety Code for the Protection of the Heads, Eyes, and Respiratory Organs of Industrial Workers. Since the December meeting the Council has taken formal action and approved these Codes.

Federal Specifications Recently Approved

The American Standards Association has received the following Federal Specifications which have recently been approved by the Director of Procurement for the use of all departments and establishments of the Government:

Air-Conditioning-Units (Room-Coolers); Electric-Motor-Driven, Portable OO-A-361
Beef, Corned; Bulk PP-B-196
Beef, Dried; Unsliced PP-B-214
Brushes; Beaker, Burette, Cylinder, and Test-Tube H-B-126
Ferromolybdenum QQ-F-171a
Oil, Floor; Mineral P-O-361
Paint; Graphite, Outside, Ready-Mixed, Black TT-P-27
Putty; Pure-Linseed-Oil, (For) Wood-Sash-Glazing TT-P-791a
Red-Lead; Dry and Paste-in-Oil TT-R-191a
Tableware; Corrosion-Resisting-Steel RR-T-41a
Tongues, Beef; Fresh, and Cured and Smoked PP-T-576
Wax; Sealing JJJ-W-151a
Wire; Steel, Copper-Covered QQ-W-421
Wrenches; Pipe GGG-W-651a

Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at five cents each.

Germany to Standardize Auto Replacement Parts

Colonel von Schell, who was appointed recently as "motorization dictator" of Germany, has been ordered to reduce to 33 the number of types of passenger cars made in Germany, truck types to 19, and to standardize all replacement parts, according to *Business Week*, December 3.

ISA Sets June 26-July 8 For 1939 Conferences

International conferences on projects of the International Standards Association will be held at Helsinki, Finland, June 26 through July 8, 1939. The Finland Standardizing Commission is acting as host to the ISA for these meetings.

Soaps, Detergents, and Their Specifications

American Society for Testing Materials' committee is working on standard specifications for soaps to help eliminate confusion in terminology, errors in filling orders, and lack of uniformity in testing

by

H. P. Trevithick

Chairman, ASTM Committee D-12 On Soaps and Other Detergents

SOAP is one of the oldest materials known, and is one material which may be said to be used universally. Being so well known and being so widely used, it seems rather strange that complete specifications have not been written long ago. This seems even more peculiar when the character of the material and the difficulties of the trade are realized. Some of the problems encountered are described below.

When made, soap contains 30 per cent to 35 per cent of water, but it can be made to contain more water than that, and it also can be dried, by natural or artificial means, to contain much less. By the superficial appearance, it is not easy to make an accurate judgment as to the actual moisture content; hence unscrupulous sellers have often cut the price materially, and then delivered soap containing excessive amounts of water. This inferior soap is not only not as valuable as the material actually sold, but also it is softer and less resistant to use, causing added waste. Thus reputable manufacturers have been subject to very unfair competition, from this one cause alone.

Since this material dries out rapidly, it often happens that delivered weights are much less than shipped weights, due to loss of moisture in transit. Most buyers have made claims of short weights, and yet all the actual soap originally shipped is still present.

Deliveries Uncertain

Further, the Government had written specifications for some soaps, in which the actual soap was specified as 100 per cent, minus the sum of the moisture, alcohol insoluble, and salt. This specification meant practically that the anhydrous (or water free) alcohol soluble material was the real soap. When glycerine was cheap, we found 6 per cent of glycerine present in a particular shipment, with an actual soap content of 86 per cent: the manufacturer had not only sold a 92 per cent product but even insisted that he had delivered such a product, according to the above specifications.

Soap powders are usually a mixture of soap and soda ash. The soap is relatively much more valuable than the soda ash, and hence the strong tendency to reduce the soap content and to increase the amount of soda ash. While the Government specifications for this material require a minimum content of 15 per cent soap, these specifications do not govern general commercial transactions, and so there has been much confusion and unethical competition by selling lower grade material, at lower prices, in direct competition with the standard grade. There is no question but that the lower grade material is very satisfactory for certain floor-cleaning purposes, particularly with the type of help that pays no attention to quantities used, but it certainly is not ethical, at least, to sell it as the higher grade material.

Due to the confusion, misunderstanding, lack

of adequate definitions, etc., this problem was presented several years ago to the American Society for Testing Materials. After considerable study and investigation, the Society decided to undertake the work. In 1936, at the annual meeting, Committee D-12 was formed to write up specifications and methods of analysis for soaps and other detergents.

Representative Committee Named

This committee consists of 60 or 70 members, including representatives of the American Oil Chemists' Society (M. L. Sheely) and of the American Association of Textile Chemists and Colorists (C. L. Nutting). The officers are the writer as chairman, F. W. Smither of the National Bureau of Standards, vice-chairman, and B. S. Van Zile of Colgate-Palmolive-Peet Co., secretary. The committee is composed of about 30 producer members and 35 consumer and general interest members, in accordance with ASTM requirements, and practice.

The committee organized with three subcommittees:

I:—Methods of Analysis, J. B. Crowe, chairman;

II:—Specifications, F. W. Smither, chairman;

III:—Definitions, F. Kenney, chairman.

Subcommittee I was divided into four sections (*a*) Soaps, M. L. Sheely, chairman; (*b*) Sulphonated Detergents, Ralph S. Hart, chairman; (*c*) Dry Cleaning Detergents, G. P. Fulton, chairman; (*d*) Special Detergents, W. H. Koch, chairman.

Subcommittee II was divided into seven sections (*a*) Textile Detergents, C. L. Nutting, chairman; (*b*) Built Soaps, F. Krassner, chairman, (*c*) Straight Soaps, I. Katz, chairman; (*d*) Dry Cleaning Detergents, G. P. Fulton, chairman; (*e*) Sulphonated Detergents, J. B. Crowe, chairman; (*f*) Special Detergents, C. C. Ziegler, chairman; (*g*) Metal Cleaners, Jay C. Harris, chairman.

The committee holds two meetings a year, in the spring and fall, each meeting lasting two days. At these meetings the various sections meet and discuss their problems, reporting finally to a general meeting the second day.

This committee has been very active and has adopted a number of specifications and methods of analysis and has written a number of definitions.

The standards adopted are:

Specifications for Caustic Soda D 456-38
Specifications for Modified Soda D 457-38

The tentative standards adopted are:

White Floating Soap—Specifications D 499-38T
Chip Soap—Specifications D 496-38T
Milled Toilet Soap—Specifications D 455-38T
Ordinary Bar Soap—Specifications D 497-38T
Powdered Soap—Specifications D 498-38T
Soda Ash—Specifications D 458-38T
Particle Size—Test for D 502-38T
Sampling & Chemical Analysis Methods for Soaps D 460-38T
Sulfonated (Sulfated oils)—Chemical Analysis of D 500-38T
Special Detergents—Methods of Analysis D 501-38T
Definitions for Soaps & Detergents D 459-38T

In addition to the above standards and tentative standards, we are considering specifications for palm oil soap, green oil soap, built soaps, liquid soaps, soap powders, phosphates, metasilicates, and others.

Our definitions will be of great assistance, we believe, in eliminating much of the present confusion in the industry. For instance, we specify that anhydrous soap means pure soap, free from water and all other concomitants. While many people have been using that definition, others have followed the custom of subtracting the sum of the moisture, alcohol insoluble, and salt from 100 per cent, while still others have calculated on the basis of the raw materials used; for instance, if 40 per cent of fat and alkali were used, then there was 40 per cent of soap in the product. Naturally this one thing alone has been the cause of many misunderstandings.

In our definitions we are considering dividing the many types of soap and alkali mixtures into four general classes;

A—Built Soaps, containing over 50% of soap
B—"Break" Soaps, containing 25 to 50% of soap
C—Soappowders containing 15 to 25% of soap
D—Soapy Detergents containing 1 to 15% of soap

This definition will be discussed again at our next meeting.

Our specifications for soaps include a requirement for a minimum actual soap content, which also will be of value in preventing disputes.

Can Calculate Amount Due

One further valuable item in the specifications is a means of calculating the actual amount due on any particular delivery. As mentioned above, soaps lose water by evaporation, and so there have been many cases of claims for short weight. Since the amount of actual soap present in the delivery is the same as when shipped, the buyer has not lost anything but water, which has evaporated in transit, and yet the seller has been penalized many times, without redress. Our formula for calculating the amount due on any transaction in soap includes factors covering the loss in weight by evaporation, and provides a just and equitable means of calculating the correct value of the delivery. We also specify that if this calculation results in a value greater than 100 per cent of the original invoice, the seller waives.

all right to collect any such excess. We are including a copy of our specifications for powdered soap, as an illustration of the type specifications we are formulating:—

PROPOSED
TENTATIVE SPECIFICATIONS
FOR
POWDERED SOAP

ASTM Designations D 498-38T

This is a Tentative Standard and under Regulations of the Society is subject to annual revision. Suggestions for revision should be addressed to the Headquarters of the Society, 260 S. Broad Street, Philadelphia, Pa.

Issued, 1938

Scope

1. These specifications cover powdered soap suitable for washing, cleaning and scouring purposes with soft water, when the presence of alkaline salts is undesirable.

General Requirements

2. Powdered soap shall be a soap in powdered form made from soda and fats, without rosin, as free as possible from water and all substances other than true soap, of a light uniform color, and free from disagreeable odor.

Chemical Composition

3. Powdered soap shall conform to the following requirements as to chemical composition. The percentage of matter volatile at 105C shall be calculated on the basis of the soap as received, but all other constituents shall be calculated on the basis of material containing 6 per cent of matter volatile at 105C.

Moisture & matter volatile at 105C, maximum, per cent	6.0
Sum of free alkali, total matter insoluble in alcohol, and sodium chloride, maximum per cent	4.0
Free alkali, calculated as NaOH, maximum, per cent	0.20
Matter insoluble in water, maximum, per cent	1.0
Titer of the mixed fatty acids prepared from the soap, minimum,	39C.
Residue retained on a 1680-micron (No. 12) sieve, maximum, per cent	1.5
Anhydrous soap, minimum, per cent	89.0

Basis of Purchase

4. Powdered soap is subject to a possible gain or loss of weight, depending on atmospheric or storage condition, or both, or on packaging, as a result of fluctuation in the moisture content. Changes in the moisture content result in a corresponding change in the percentage of total solids or anhydrous soap, or both.

(*a*) The material shall be purchased by net weight provided the matter volatile at 105C is neither above nor below 4 per cent.

(*b*) Deliveries containing more than 6 per cent of matter volatile at 105C shall be rejected without further test.

(*c*) On deliveries containing less than 6 per cent of matter volatile at 105C settlement shall be made on the basis of the product containing 4 per cent of moisture, that is, 0.96 lb of non-volatile matter shall be considered 1 lb of soap.

(*d*) When the material conforms to these specifications on a calculated 6 per cent moisture and volatile matter basis the net weight of the material to be paid for shall be calculated as follows:

$$\text{Net weight of material to be paid for on 4 per cent moisture \& volatile matter basis} = \frac{\text{Net weight as Rec'd} \times (100 - \text{percentage of loss at 105C})}{96}$$

(*e*) In the event that the calculation under Paragraph (*d*) results in a figure greater than 100 per cent, due to low moisture content at the time of cutting, weighing, and packing, the seller waives the right to invoice the purchaser for any amount in excess of 100 per cent.

Methods of Sampling and Analysis

5. (*a*) The material shall be sampled and analyzed in accordance with the Standard Methods of Sampling and Chemical Analysis of Soaps and Soap Products (ASTM Designation: D 460), and the Tentative Method for the Determination of Sodium and Potassium Oxides in Soaps (ASTM Designation: D 460-38T) of the American Society for Testing Materials. The purchaser reserves the right to use any additional available information to ascertain whether the material conforms to these specifications.

(*b*) The sieve analysis shall be made in accordance with the Tentative Methods of Test for Particle Size of Soaps and Other Detergents (ASTM Designation: D 502-38T) of the American Society for Testing Materials.

In general, then, we feel that we have made considerable progress in clearing up some of the causes for misunderstanding in soap transactions, and that these specifications will be of great assistance in checking unfair competition. In time, we hope to write specifications for the many other detergents, but some of this work will be slow, especially that connected with dry-cleaning soaps and metal cleaners. These fields are so new and the interests so varied that it is very difficult to formulate definitions.

Because the work of this committee is so new and its program is still in a formative stage, we will appreciate any comments on the topics we have discussed in this article, as well as suggestions for new subjects that might be advantageously studied by the committee.

Hosiery Manufacturers Advertise Standards

The standards of the National Association of Hosiery Manufacturers are used in its advertising and promotional work by one of the large manufacturers, the Davenport Hosiery Mills, Inc., according to the Service Bulletin of the U. S. Testing Company, September.

Railroads Consider Change In Standard Rail Length

PRESIDENTS of American railroad companies and executives of principal rail-making steel companies will hold a meeting in about 30 days to discuss a proposal by several important railroads to increase the standard length of steel rails from the present 39 feet to 45 feet.

"Preliminary discussions have been held recently on this point, which has been debated from time to time for several years," says the N. Y. Times, January 5, which announced the proposed meeting.

"The railroads have suggested a price increase of $1.00 a ton for the longer rails as an inducement to the steel mills to make the necessary changes in their facilities.

"The steel companies are unwilling to alter their equipment at a cost estimated at $5,000,000 to $6,000,000 unless all the roads agree to adopt the new size, and also do not wish to supply concurrently both 39-foot and 45-foot rails for numerous practical reasons, it was said in steel circles yesterday.

"It is indicated that long stretches of welded rails, laid down for testing by a few railroads in recent months, have proved too costly for general use, although they have made for smoother riding, with the result that the railroads are turning to their earlier views that an increase of 6 feet in the length of rails is desirable to assure greater passenger comfort.

"The 45-foot length can be shipped readily with present freight-car equipment, and can be substituted easily as each thirteen lengths would replace fifteen lengths of the present standard rail.

"Steel makers, on the other hand, have recommended the adoption of the 79-foot English rail or even the 100-foot German rail as an alternative if there is to be a change in the standard length, asserting that if alterations are to be made now it would not be logical to make further changes in a few years."

Australia Issues Three Road-Making Standards

Three standards having to do with problems connected with road making have just been received from the Standards Association of Australia. One is a glossary of terms and definitions used in road engineering and construction. It was prepared to help standardize the terms and definitions used by road engineers, to bring about uniformity, and to clarify the meaning of specifications for road building in Australia. It is also designed to contribute toward an International Glossary of Road Terms.

The other two standards provide specifications for road grader cutting edges and tynes and road roller tynes, and for residual bitumen and fluxed native asphalt for roadmaking purposes.

The specifications for road grader and roller tynes and cutting edges were prepared at the request of the Department of Main Roads of Australia which had found that many graders had been made with no uniformity in the size and spacing of holes for attachment of blades. This lack of uniformity made it difficult to secure replacements. The specifications were limited to replaceable parts such as cutting edges and tynes.

The specifications for bitumen and asphalt are revisions of earlier specifications published in 1932 and widely distributed for review. They prescribe the physical and chemical requirements of these materials, and methods of test, some of which are similar to those approved by the American Society for Testing Materials.

Copies of these standards, ASS No. A40-1938; No. H10-1938; and No. A10-1938, respectively, may be ordered through the American Standards Association.

NEMA Reports on Capacity Of Code Insulated Wires

The National Electrical Manufacturers Association has just published the final report of the findings of its Rubber-Covered Building Wire Section on the current-carrying capacity of rubber-insulated building wire.

The report is entitled "NEMA Report of Determination of Maximum Permissible Current-Carrying Capacity of Code Insulated Wires for Building Purposes." Data on Performance and Heat-Resistant grades of insulation are covered as well as Code Grade.

Copies may be obtained from the National Electrical Manufacturers Association, 155 East 44th Street, New York, at 25 cents each.

New Standards for Plywood Benefit Builders and Public

by

Philip Garland

President, Douglas Fir Plywood Association

Standard requirements for minimum moisture resistance of all Douglas fir plywood, incorporated in the recently revised Commercial Standard, and a new grade-marking policy mark developments of outstanding importance in the plywood industry, says the president of the association in this article reprinted from the *American Builder and Building Age*.

TWO technological developments of outstanding importance have marked the progress of the Douglas fir plywood industry during 1938.

First was the adoption of a definite standard for the minimum moisture resistance of all Douglas fir plywood.

Second was the launching of a grade-marking and trade-marking policy by the Douglas Fir Plywood Association.

The two improvements of immeasurable benefit to builders and the consuming public, became effective officially November 10, 1938.

On that same date was promulgated also the revised Commercial Standard (CS45-38) for Douglas fir plywood.[1] This standard, proposed by the industry and established by the National Bureau of Standards, incorporated officially the rigid moisture resistance requirements for both the water-resistant stock panels and those of the strictly waterproof type; in addition were included details of the Association's grade-marking program.

Moisture resistance in plywood has been of interest for many years, especially since the world war when highly water-resistant glues were developed for army airplane construction.

During recent years, Douglas fir plywood has bounded into the limelight as a versatile, first-class construction material. Immediately, moisture-resistance became of greater importance, and it became obvious that definite performance standards should replace the more general, yet strictly factual, description of the bonding agents used in manufacture.

A little more than two years ago, engineers from the FHA and other government agencies met with technicians from the U. S. Forest Products Laboratory and the plywood industry to solve this problem. The endeavor was to establish tests or performance standards which would be clearly indicative of the suitableness of plywood panels, for

[1]Standard grading rules were approved by manufacturers, distributors, and users, August 17, 1932, and promulgated by the National Bureau of Standards as Commercial Standard CS45-33. The standard was first revised in 1936.

On suggestion of the Federal Housing Administration and following a series of conferences between representatives of the Forest Products Laboratory, FHA, and the plywood manufacturers, the Douglas Fir Plywood Association proposed a second revision of the standard so as to provide for two classes of moisture resistance. The proposal also included some changes in the sheathing grade. This revision was accepted by industry and promulgated by the National Bureau of Standards, effective for new production beginning November 10, 1938.

both permanent exterior exposure and casual exposure such as might be encountered during the sheathing of a building.

The Committee, with a Bureau of Standards representative as chairman, arranged for numerous tests, and, after painstaking investigations, determined upon certain definite moisture-resistance requirements. A consideration of plywood sheathing and sub-flooring under actual job conditions was the guide and basis. The industry, recognizing the multitude of uses for its product, felt that not only its sheathing grade, but *all* Douglas fir plywood could and should conform to the new standards and accordingly these were included as already noted in the government's revised Commerical Standard CS45-38.

The next step was to give the consumer visual assurance that when he purchased Douglas fir plywood, in one panel or a carload, he was getting material of the exact type, grade, and specification ordered. Controlled grade-marking was the obvious solution, and so without delay a program was set up by the Association.

Approrpiate symbols for each grade were designed, registered, and trade-marked. These symbols, sometimes called the Four Aces by our associates, and the Four Horsemen by our competitors, are illustrated in Fig. 1. The mark "Ext-DFPA" is used only on the "exterior" type of Douglas fir plywood made with a strictly water-proof bonding agent and suitable for permanent exposure to weather and moisture. It will be noted that each mark or symbol contains the initials DFPA, the official abbreviation for the Douglas Fir Plywood Association, as well as the grade designation.

For the special benefit of carload industrial buyers, whose orders may be for various cut-up sizes there is issued a certificate of inspection showing material to be as ordered.

Mills that are Association members are licensed to use these grade-marks and the Association trade-mark, providing they adhere strictly to Commercial Standard CS45-38, and Association grading rules. The specialized inspection service of the Association, with a corps of experts, cooperates with the mills in enforcing adherence to rules, closely supervises all grade-marking and trade-marking and assists in their constant endeavor to improve and perfect the technique of plywood manufacture.

This is stamped or branded on the edge of standard panels, *i.e.*, G2S; G1S: and So2S.

This mark is branded or stamped on the edge of Exterior Plywood Panels and denotes that they are strictly water-proof, capable of passing severe requirements of CS 45-38.

Benefits to Consumers

The consumer, by specifying material of desired type and grade "stamped or branded with the official grade-mark and trade-mark of the Douglas Fir Plywood Association," is assured of plywood conforming to Commercial Standard CS45-38. Also he knows the plywood will have definite water-resistance and be suitable for the recommended uses.

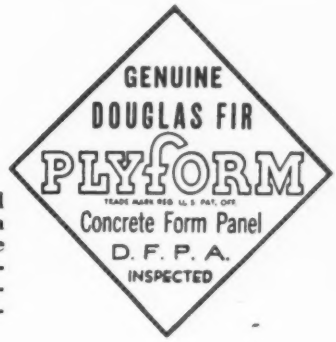
Details of New Grades

Members of the Association manufacture Douglas fir plywood of three performance types.

The highest of these is "Exterior" plywood which is edge-branded or stamped "EXT-DFPA." It is intended for permanent outside exposure, and is made in several appearance grades such as Good 2 Sides, Sound 2 Sides, etc., to provide for a variety of services. Only plywood made with glues tested and approved by the Research

This circular stamp in the corner of a panel denotes Plyscord sheathing. The "M. Res." stands for moisture resistance as per CS 45-38. On the face of the Plyscord panels the word "PLYSCORD" is also repeated in parallel lines 16 in. apart.

This square stamp appears on the back of PLYWALL wall board of Douglas Fir Plywood.



This diamond-shaped stamp appears on the face of genuine Concrete Form Panels, made with special highly water-resistant glues.

Department of the Association can be given the "EXT-DFPA" marking.

Next is the special Concrete Form grade, in which every panel is face-stamped "PLYFORM." This type has a special highly water-resistant glue bond suitable for a number of re-uses in concrete forms, trench sheeting and similar temporary construction uses. The grade-mark "PLYFORM" within a diagonal stamp protects the consumer from getting Sound 2 Sides stock panels "at a lower price." The number of re-uses obtained with "PLYFORM" will vary. Numerous authentic records show 15 and more re-uses on different jobs.

The "Moisture-resistant" or third type of Douglas fir plywood embraces the familiar stock panels, made in six regular grades. Of these the three top appearance grades (Good 2 Sides, Good 1 Side, and Sound 2 Sides) are all edge-branded or stamped "PLYPANEL-DFPA." A "good" side or face must be in one sheet of practically clear veneer, whereas a "sound" face may consist of several longitudinal pieces and may contain neat patches, sap and minor streaks but is free from any open defect, and is suitable for a paint finish. It has been found impractical to attempt to distinguish between these grades by marking for several reasons. For example, a Good 2 Sides panel might be marred on one face in transit and have to be sold as "Good 1 Side"; obviously a "Good 2 Sides" grade-mark, in such event, would mislead.

"Wallboard" and "Sheathing" are the other two stock grades of interest to architects; the "industrial" grade is used almost exclusively for cut-up stock in toys, furniture, automobiles and the like.

Wallboard is now stamped 'PLYWALL" on the back. In the standard 48 inch width, it is probably the most familiar and popular of all plywood grades.

"PLYSCORD" the new unsanded Sheathing grade of Douglas fir plywood, bids fair to revolutionize light building construction. Every panel is marked in parellel lines 16 inchs apart across the face, for ease in nailing, and is stamped "PLYSCORD" within a circle. The exposed face is patched to eliminate all open defects larger than $\frac{3}{8}$ inch."

Under the new requirements every piece of Plyscord Sheathing (as well as "Plywall" and "Plypanel") must possess adequate moisture resistance for building uses and be capable of passing the severe tests specified in Commercial Standard CS45-38.

The establishing of these new standards for Douglas fir plywood has improved the product of the entire industry, and has made it possible for architects and builders to specify with assurance as to quality and serviceableness. Moisture-resistance standards, grade-marking and trade-marking, backed by Association supervision, presage a new era for one of America's lustiest infants. "There is a suitable type and grade of Douglas fir plywood for every service."

ASA Committee Representative Attends Canadian Meeting

V. A. Hetzel, Frigidaire Corporation, a member of the Sectional Committee on Mechanical Refrigeration of the American Standards Association, attended a recent meeting of the Canadian Engineering Standards Association's committee on the same subject at Montreal, September 9. A draft standard based on the proposed revision of the American Standard Safety Code for Mechanical Refrigeration is now being considered by the Canadian committee for recommendation to the CESA. The American sectional committee is now taking a final letter ballot on approval of the proposed revision.

Argentina Joins International Standards Association

The Argentine national standardizing body, Instituto Argentino de Racionalizacion de Materiales, has announced that it is joining the International Standards Association in January, 1939.

The ISA is now a federation of 21 national standardizing bodies which, through representation on the ISA technical committees, help to formulate recommendations for uniform practice for acceptance by the member countries.

Committees Reaffirm Simplified Practice Recommendations

The following Simplified Practice Recommendations have been reaffirmed without change by the Standing Committees in charge of the review of these programs:

Dental Brush Wheels. SPR R116-30
Package Sizes of Dental Plaster, Investment, and Artificial Stone. SPR R117-30
Steel Reinforcing Spirals. SPR R53-32
Warehouse Forms. SPR R34

Copies of SPR R117-30 and R53-32 are available for five cents each; SPR R116-30 and R35 for ten cents each, from the Superintendent of Documents, Government Printing Office, Washington, D. C.

Organizing for Standardization

"Standardization will not yield its maximum effect unless it is applied as a centralized function of management performed under the direct supervision of a high-ranking executive."

—JOHN GAILLARD

HOW to plan an active campaign to awaken greater interest in standardization on the part of business executives was the subject of a round-table discussion at a meeting of the Standardization Division of the Society for the Advancement of Management, December 8.

The meeting was held at New York during the Society's annual convention. Thirty members and visitors attended and 18 organizations were represented. These included 13 manufacturing concerns, two firms of consulting engineers, one research organization in the life insurance field, the Harvard Business School, and the American Standards Association.

To Develop Better Understanding

Acting as chairman, John Gaillard, vice-president in charge of the SAM Standardization Division, explained that the meeting had been called primarily to devise means for developing a better understanding of the essential purpose of standardization. This purpose he defined as the coordination of the performances of all elements involved in a human enterprise. In the engineering field, great strides have already been made in the standardization of units of measurement, significant dimensions of industrial products, manufacturing processes, methods of inspection and testing, tools and equipment, and safety measures, he said. In each of 25 countries, standards of this kind have become extensively coordinated nationally through a central body—in this country, the American Standards Association. International unification has been attained to a considerable degree under the auspices of the International Standards Association and the International Electrotechnical Commission.

"But," he said, "standardization is not merely a problem of engineering: its maximum benefit can be obtained only of it is applied as a distinct function of management.

"It is true that the engineer, the production manager, the purchasing agent, and the inspector usually realize the value of standards. They feel the need for them daily in their work. But to convince the president or some other high-ranking executive that systematic application of standards is an indispensable feature of good management often requires considerable effort."

The problems the meeting was called to consider were defined by Dr. Gaillard in two questions:

"What can be done to broaden the executive's picture of the principles and technique of standardization as these have been developed during the last 20 years?

"How can we find out in what fields, other than those covered by the activities of the American Standards Association, the systematic application of industrial standardization should be promoted? For example, should not standards of capacity and performance be applied to the human element in an organization as well as to dimensions and materials?"

Wide Interests Valuable

"The various interests of the SAM membership present a fine opportunity for building up a united front of action," Dr. Gaillard said. "Some members may be especially interested in standards for time, motion, and fatigue study; others, in standards for personnel matters; and still others in standards for office management. Those in-

terested in engineering standards have a common ground with the groups affiliated with the ASA. For this reason, personal invitations to this meeting were sent to the ASA Company Member Forum, a group composed mostly of standardization engineers in companies affiliated with the ASA who meet from time to time to discuss informally subjects of common interest."

Questions Discussed

Several members of the ASA Company Member Forum were present.

As a basis for discussion the chairman presented the following questions to the meeting:

How can the different parties effectively be united in a common effort to promote standardization as an art and a technique by itself?

Should local groups be organized in important industrial centers to discuss standardization subjects of particular interest to them?

If so, should a central SAM committee be set up to assist the local groups in their efforts?

In the discussion that followed, to illustrate what has already been accomplished in the engineering field, several men affiliated with ASA member companies reviewed the development in their firms of standardization programs relating to such branches as engineering, manufacturing, and purchasing. Their experience indicated that the initiation of this work frequently requires much effort, but once established clearly proves its merits and becomes firmly established. In some cases the president of the company has become the chairman of the central standards committee.

The need for standards as applied to personnel problems, particularly in the field of distribution, was stressed. Mention was made of five large marketing organizations which have successfully adapted to their own activities standardization techniques previously applied solely in the engineering field. It was suggested that coordination might be undertaken in regard to such matters as standard job specifications and personnel selection, including physical examinations of applicants for specific jobs.

In the old order of things, one of the speakers recalled, purchasing was handled by a clerk as a bookkeeping job, instead of being dealt with on the basis of definite specifications. Now, he said, the modern purchasing engineer is thoroughly convinced of the value of standards—or rather, he has found them to be indispensable in his work.

Another speaker called attention to the important part a trade association can play in promoting the effective use of standards in its own branch of industry.

To promote standardization generally as a managerial function, the meeting favored the organization of local groups. Assistance in forming such groups in New York City, Jersey City, and Philadelphia was offered by members at the meeting. (A similar offer in regard to a group in Detroit has been received by letter.) Appreciation was shown for the excellent work of a very active group, organized under the auspices of the Chamber of Commerce, in Rochester, N. Y., which started early in 1938 to promote industrial standardization in companies.

Those present approved the idea of setting up a central SAM committee which would support the efforts of the local groups by formulating a general plan of action and by getting further suggestions from the Society's membership.

The chairman said that the suggestions received at the meeting would be given careful attention for further development, and that every effort would be made to coordinate the activities of the SAM groups with similar efforts undertaken by the American Standards Association. In this way a widespread, harmonious, and effective plan of cooperation would become possible, he said.

Additional suggestions which may contribute to the success of this new campaign will be welcomed. It is requested that they be addressed to John Gaillard, mechanical engineer, American Standards Association, 29 West 39 Street, New York.

ASTM Issues 1938 Edition Of Cement Standards

The 1938 edition of the special compilation of ASTM Standards on Cement, as issued by the American Society for Testing Materials, includes five specifications covering portland cement, high-early-strength portland cement, natural cement, masonry cement, and sieves for testing purposes. There are also given in their latest approved form the standardized methods of sampling and testing portland cement, chemical analysis of portland cement, compressive strength of portland-cement mortars, and fineness of portland cement by means of the turbidimeter. There is also included for information and to stimulate comment, a proposed draft of a method of test for autoclave expansion of portland cement.

In the manual on cement testing which gives supplementary information on the standard methods there is provided a list of selected references on portland cement.

Copies of this 107 page publication in heavy paper cover can be obtained from the American Society for Testing Materials, 260 S. Broad St., Philadelphia, at $1.00 each.

Oil Burner Industry Starts New Standardization Program

A STANDARDIZATION program for oil-burner installations was started at a meeting November 15 attended by 41 oil-burner manufacturers, representing 70 per cent of the industry in unit volume.

The meeting was called to consider recommendations of the Oil Burner Industry Standards Committee, elected October 12 to formulate equipment standards and installation procedures for submission to the Federal Housing Administration. The Standards Committee held three meetings between the date of its organization and the November meeting to consider complaints received from the FHA with regard to unsatisfactory oil-burner installations. It reported a general program for developing standards as well as specific details of procedure to carry out the program.

One of the recommendations was for the use of an oil-burner certificate to indicate compliance with the standards developed by the Committee, to be filled in and attached by the installer of the burner. The certificate was accepted in principle at the November 15 meeting, but details of information to appear on it were referred back to the committee with suggestions for changes.

According to the agreement of the Federal Housing Administration with the Oil Burner Industry Standards Committee which was agreed to in principle at the November 15 meeting, the FHA will require that the oil burner installer test the performance of the oil burner in the system to which it is connected. The tests are to be made according to procedure specified by the Committee, and evidence of the results will be required. The tests are to include measurement of CO_2, stack temperature, draft, rate of firing to connected load, absence of smoke, etc. Detailed requirements for the tests were discussed at the meeting and recommendations were made for methods of carrying them out.

The Oil Burner Industry Standards Committee was authorized to proceed as a Standing Committee of the industry to ask endorsement or approval of its program by the National Bureau of Standards or other government agencies. It was also authorized to make recommendations to the industry on testing laboratories to carry out the proposed tests.

In addition to the test requirements, the Federal Housing Administration will require that the burner be installed and serviced by competent workmen and that evidence of such competency be attested by the oil burner manufacturer.

Two additional phases of the program outlined by the Oil Burner Standards Committee at the November 15 meeting were considered and it was voted that the Committee be requested to confer with the National Bureau of Standards about them. They cover:

> **A broadening of the manufacturer's guarantee to include compliance with specifications for machining tolerances, interchangeability of parts, production testing of burners, inspections, etc.**
>
> **Provision for testing burners in a laboratory to include performance in accordance with a specified set of standards, to include radio interference, noise, and operating performance.**

The expense of the committee's work is being carried by the members of the oil burner industry on a pro rata basis, temporarily, until a permanent and definite basis of operation can be arrived at.

Standard Tests for Hosiery Described in New Circular

A new publication issued by the National Bureau of Standards makes available to manufacturers, commercial testing laboratories, home economics teachers, distributors of hosiery, and others interested, the methods used by the National Bureau of Standards in its analysis and tests for hosiery.

The circular was prepared by E. Max Schenks and Howard E. Shearer, research associate and assistant research associate of the National Association of Hosiery Manufacturers, Inc. The methods described in the circular have been reviewed and approved by the Committee on Standards of the Association, and by the Knit Fabrics Committee of the American Association of Textile Technologists.

The circular describes the visual examination of hosiery for type and workmanship; methods for measuring the size and dimensions of the various parts; directions for analyzing the construction of fabric and yarn; and outlines tests for physical properties, color fastness, and shrinkage.

Copies are available from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 15 cents each.

Uniformity Proposed For State Food and Drug Laws

TWO proposed uniform food and drug bills for consideration by state legislatures have been prepared, and a third, combining features of the first two, is being prepared in anticipation of the meeting of the various state legislatures in the new year. All three bills are modeled after the new Federal Food and Drug Law which went into effect during this last year.

One of the propsed bills prepared by the National Drug Trade Conference, confines itself to drugs alone, exempts drugs provided on prescription from the labeling provisions, and does not include the Federal law's provision for court review of administrative regulations. It does, however, provide that curative or palliative claims must not be made in advertising in connection with 36 specific diseases.

Sponsored by Officials

The second bill is sponsored by the Association of Food and Drug Officials of the U. S. This bill is also based on the new Federal food and drug law, but it provides much more stringent seizure provisions. This state officials' bill goes farther than the drug trade bill in that it provides for the establishment of quality food grades.

The third bill, a compromise between the other two, is being prepared by Charles Wesley Dunn, counsel for various food and drug firms and associations, who is trying to prepare a model bill which will be acceptable to all groups.

Six states already provide for testing and reporting on food and drugs—Alabama, Connecticut, Indiana, Maine, New Hampshire, and North Dakota. At the end of each year the North Dakota Regulatory Department, which carries out the most stringent of these state regulations, reports on the year's tests of meat; dairy products; canned vegetables; spray residue on fresh fruit and vegetables; bakery products; coffee; tea; cocoa; spices and condiments; dairy and stock feeds; and drugs. It also reports on other products on which it has special laws, such as paints, fertilizers, animal feeds, petroleum products, insecticides, fungicides, and flour. The reports include the brand names of the products tested.

"North Dakota's program," says *Business Week* which in its November 12 issue gave a comprehenive discussion of the state's last year's findings, "is an example of what food, drug, and cosmetic manufacturers might not unreasonably expect from some other states next January. And it is a shining example of why manufacturers are interested in getting state legislation that's uniform, and as lenient as the federal act."

Recommendations on Paper Shipping Tags Revised by Committee

A first revision of the Simplified Practice Recommendation R93, Paper Shipping Tags, has been approved by the Standing Committee in charge and copies have been mailed to those concerned to determine whether it is generally acceptable.

The revision, which was proposed by the Tag Manufacturers Institute, covers sizes of shipping tags and the paper stocks used in their manufacture. Four tables are included, showing fiber content, weight, thickness, and Elmendorf tear for manila tag stocks, kraft and dyed stocks, coated stocks, and white lined stocks.

The original recommendation was developed by a general conference of the industry in April, 1929.

Following approval of producers, distributors, and users of paper shipping tags, the revised recommendation will be promulgated and printed by the U. S. Department of Commerce.

Mimeographed copies of the proposed revision may be obtained from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C.

Canadian Committee Recommends Adoption of ASME Boiler Code

The Boiler Code of the American Society of Mechanical Engineers was approved by the Canadian Boiler Code committee at its meeting September 28, and will be recommended to the Canadian Engineering Standards Association for adoption as a Canadian standard.

Standard Tests Guide Government In Incandescent Lamp Buying

How standard tests carried out by the National Bureau of Standards determine what electric light bulbs meet specification requirements

Federal Specifications for Government buying are revised in light of results obtained from standard tests during the past contract period

by

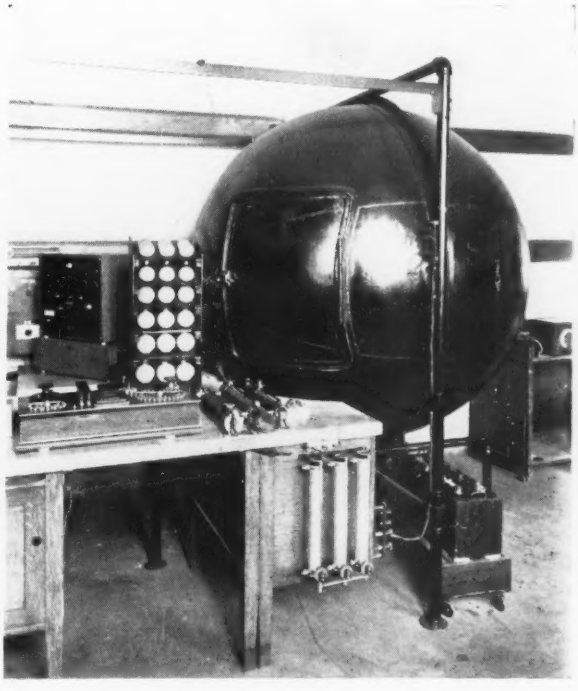
Franklin J. Meyer

National Bureau of Standards

THE United States Government is a large purchaser of incandescent lamps of practically all types and sizes, except series-burning lamps which are bought in very small quantities. The lamps are purchased by the Federal Government from the manufacturers directly, under annual contracts negotiated by the Procurement Division of the Treasury Department and the lamps are inspected by a Government inspector at the factories of the contractors. It should, however, be stated that numerous purchases are made for which inspection and life tests are waived.

For many years incandescent lamps have been supplied by manufacturers on annual contracts on the basis of rigid specifications as to the light output and the life of lamps. This was the case even when the only incandescent-filament lamps available were carbon-filament lamps of two or three sizes. More recently Federal Specifications, designated W-L-101 and W-L-111, have been the basis of Federal contracts for large and miniature lamps respectively. At the present time there are five manufacturers who have contracts to supply large or miniature lamps to the Federal Departments. One of these manufacturers supplies only miniature carbon-filament lamps.

At least once a year representatives of the contractors meet with engineers at the National Bureau of Standards to consider revisions of Federal specifications for incandescent lamps, such revisions being based on the experience of the contractors and the Bureau as shown by the tests of the previous contract period. Experience has shown that the general text of the specification



This sphere photometer, equipped with a photoelectric cell and potentiometer for reading lumens, voltages, and currents is used to measure the life of lamps

does not require revision yearly, but there is so much change in lamps themselves during each year that it has been found desirable to issue annual supplements to correspond with each contract period. These annual supplements can be revised more readily than the specifications.

Recently the Procurement Division of the Treasury Department has found it desirable to advertise its contracts for lamps to become effective September of each year, and the supplements to the Federal specifications for large and miniature tungsten lamps are issued annually to begin with the contract period, that is, September 1st. Carbon-filament lamps are so nearly obsolete and are purchased in such small quantities that there are no specifications applicable to them.

Tolerances Revised

At the annual meetings of the manufacturers' engineers with members of the staff of the National Bureau of Standards, the changes that have been found desirable, both from the viewpoint of the contractors and from the viewpoint of the National Bureau of Standards, are very carefully considered and the limits and tolerances on the initial light output and the maintenance of lamps are revised as the conditions may dictate.

During the contract period which ended on August 31, 1938, the supplement to the specification covering large tungsten-filament lamps was revised twice, largely because of the introduction by the contractors of several sizes of so-called coiled-coil filament lamps. The present specification for large lamps is designated W-L-101c and the supplement is called the 1939 supplement. Both specification and supplement are effective for the contract period September 1, 1938 to August 31, 1939 with the understanding on the part of the contractors and the Procurement Division that changes advantageous to the Government which may be introduced by the contractors during the year may become part of the specification and corresponding supplement. A similar statement holds for miniature lamps, specification W-L-111b with 1939 Supplement.

A very important item in specifications W-L-101c and W-L-111b[1] is the method of qualification of prospective bidders. Experience has shown that information as to the quality of lamps and the delivery service that may reasonably be expected from a contractor should be known to the contracting agency, that is, the Procurement Division, before contracts are made. It has therefore been found desirable to set out in detail a method of qualification of bidders. In brief, this method is as follows.

The Procurement Division issues an advertisement for bids for incandescent lamps for the contract period to begin September 1 of each calendar year. Interested manufacturers of incandescent lamps are directed by the Federal specifications for lamps to notify the Procurement Division that they are interested in bidding and inform the Procurement Division that they are prepared to present to an inspector of the Federal Government not less than 2400 lamps of nine specified sizes ranging from 25 watts to 300 watts of large lamps, and 2000 lamps of designated sizes if they are interested in bidding on miniature tungsten-filament lamps.

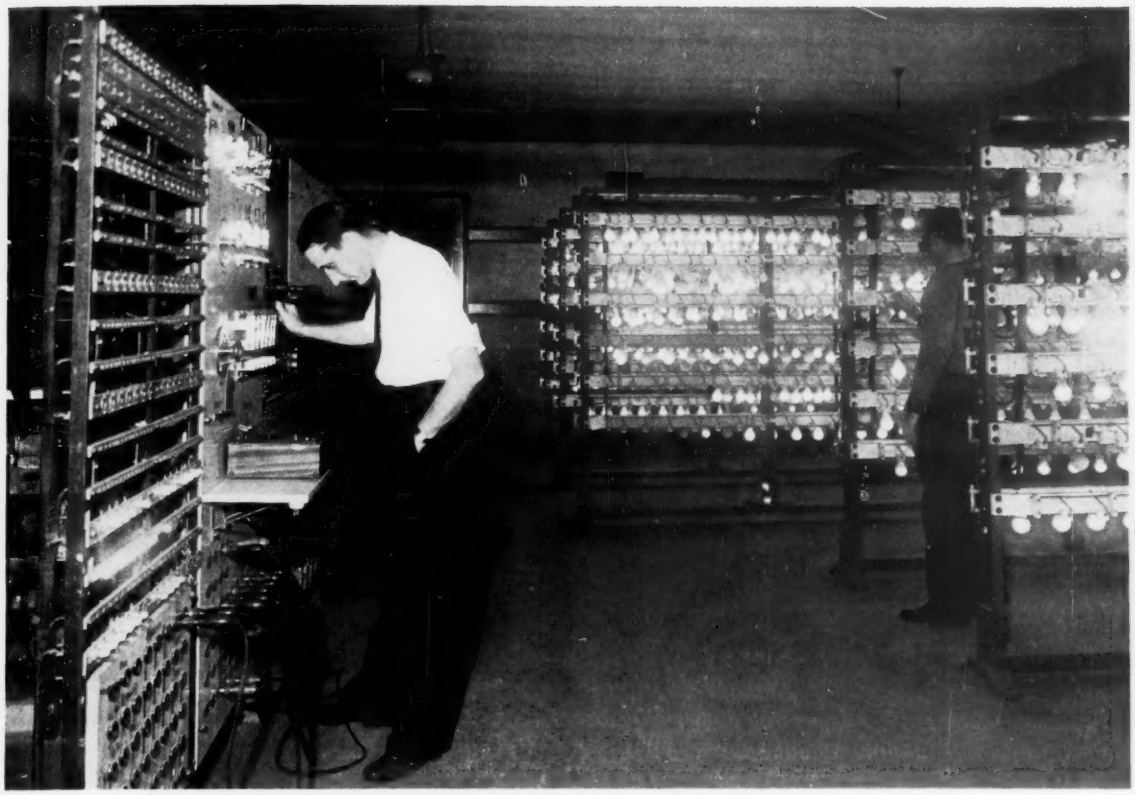
The Government inspector of incandescent lamps visits the factory of the prospective bidder and in the case of a prospective bidder who desires to furnish large lamps to the Government, inspects in accordance with the terms of the specification the 2400 lamps of each size presented, 1200 of which are to be 115-volt lamps and 1200 are to be 20-volt lamps. From each lot of 2400 lamps, 20 are selected for photometry and life test in the laboratories of the National Bureau of Standards at Washington, D. C.

When the lamps are received at the Bureau they are carefully measured for watts and lumen output, and the lumens per watt for each lamp computed. The values obtained must fall within the limits and tolerances that are designated in the specification and the corresponding annual supplement. The lamps are then burned on the burning racks at normal efficiency, that is, at the efficiency which the manufacturer declares to be the efficiency at which the lamps are manufactured in order to give the life as set out in the Federal specification. If the average life of all the lamps tested is equal to or greater than the weighted average as designated in the specification within specified tolerances, and if the inspector has found the facilities for manufacture, photometry, and shipment satisfactory, the Procurement Division is notified that the prospective bidder has qualified to be considered as a prospective contractor.

Qualifications Determined

If the prospective bidder is a contractor for the current contract period, qualification to be a contractor for the coming contract period is determined by the weighted average life of all of said contractor's large lamps which are submitted by the contractor in filling orders from the fifth to the tenth month of the contract period. Similar procedures are carried out for miniature lamps.

[1]Copies of W-L-101c and W-L-111b, Federal specifications for large tungsten-filament lamps and for miniature lamps respectively, may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 5 cents each for the specifications and the corresponding supplement.



Voltage control board and burning racks for incandescent lamp testing at the National Bureau of Standards

When an order for lamps is sent by a purchasing officer to a contractor a copy of the order is sent to the National Bureau of Standards. Take as an example an order for 10,000 lamps, 40-watt size, 115 volts. The inspector on his next visit to the contractor's factory will ask that all of the 10,000 lamps concerned be spread out before him in their opened standard packages. He selects from these standard packages five per cent of the lot, that is, 500 lamps taken at random and proportionately from the individual packages of the lot.

These lamps are known as the "inspection-test lamps." They are inspected for physical defects. From the inspection-test lamps, "life-test lamps" are selected at the rate of four lamps from the first thousand lamps of any lot and one lamp from each 500 lamps or part thereof by which the lot exceeds 1,000 lamps. If the original lot consisted of 10,000 lamps, then the number of life-test lamps would be four from the first thousand and two each from each succeeding thousand, making in all 22 lamps. These 22 lamps are sent to the National Bureau of Standards and carefully photometered, that is, they are measured for lumen output and electrical input (watts) when burned at labeled volts. A card record is made for each lamp and the lamps are then placed on the burning racks and burned at declared efficiency; that is, at the efficiency in lumens per watt declared by the contractor to the inspector when the initial factory inspection was made.

After the inspector has made his selections from the 10,000 lamps we have been considering, the lamps are repacked by the contractor and if the initial inspection has been found satisfactory each package is labeled by the inspector as an inspected package. The packages are held by the contractor in an inspected stock and are not released for shipment to their final destination until the life test at the National Bureau of Standards has been completed. If the lamps are found to comply with the requirements of the specification, the contractor is so notified and the lamps are released for shipment and delivery to the ordering office.

This procedure takes considerable time and lamps ordinarily can not be inspected, life tested, and delivered in less than two months time. During the contract period ended August 31, 1937, over four million lamps were inspected and for the contract period ended August 31, 1938, ap-

proximately three and three-quarter millions were inspected. Over 6,000 samples from these lamps were life-tested during each of these contract periods. As already indicated, a considerable number of lamps are purchased for which inspection and life test are waived by the purchasing officer.

In all this procedure the National Bureau of Standards is acting as the inspecting and testing agent of the Procurement Division, and does not approve brands of incandescent lamps nor publish the results of tests on any contractor's products. Each contractor, however, is free at all times to consult the test records on his own lamps.

There is no Government approved list of manufacturers of incandescent lamps. Each year each contractor must qualify anew as a bidder for the next year's contract. If the lamps supplied by any contractor during the fifth to the tenth month inclusive of a contract period comply with the requirements of the qualification test, then the name of the contractor is reported to the Procurement Division as having complied during his contract period and is considered by the Procurement Division as a qualified bidder for the next year's contract. Qualification of a contractor does not, however, insure the award of a contract for the ensuing year. This is determined by price and the evidence submitted to show that the manufacturer in question can give satisfactory service.

ASME Elects New Officers

The American Society of Mechanical Engineers elected new officers at its annual meeting in New York December 5-9. Alexander Graham Christie, Professor of Mechanical Engineering at Johns Hopkins University, was chosen president to succeed Dr. Harvey N. Davis, president of Stevens Institute of Technology.

Alfred Iddles, of the Babcock & Wilcox Company, chairman of the Mechanical Standards Committee of the American Standards Association, was elected as one of the ASME vice-presidents, together with Henry H. Snelling of Washington, William Lyle Dudley of Seattle, and James Wentworth Parker of Detroit.

In addition to acting as chairman of the Mechanical Standards Committee, Mr. Iddles is a member of the ASA Standards Council, and represents the American Society of Mechanical Engineers on the Sectional Committee on the Code for Pressure Piping, and the Edison Electric Institute on the Sectional Committee on Drawings and Drafting Room Practice.

British Standard For Linoleum

A new standard specification for Plain Linoleum and Cork Carpet has been prepared by the British Standards Institution. In this standard linoleum is divided into three types—Walton Super, Walton Ordinary, and Taylor—and qualities range from Double Extra (thickness of 6.70 mm) to X (1.90 mm in thickness).

The materials of which linoleum shall be made in order to conform to the standard are given, and the finish and seasoning are specified.

A number of tests and methods of carrying them out are specified. Copies of the standard, BSS No. 810-1938, may be ordered through the American Standards Association.

Beven Succeeds L. A. Downs As Illinois Central President

L. A. Downs, who was a member of the Board of Directors of the American Standards Association from 1929 through 1936, retired from the presidency of the Illinois Central Railroad during the past month. Mr. Downs has been in poor health for some time, but will continue to be active in the affairs of the railroad serving as Chairman of the Board. J. L. Beven has been elected to succeed him as president.

Mr. Downs was nominated by the Association of American Railroads to membership on the Board of Directors of the ASA in 1929, and took an active part in the work of the Association during the six years he was a member.

ATA Appoints Andrews On Standards Council

The American Transit Association has appointed Colonel J. H. M. Andrews, chief engineer, Philadelphia Rapid Transit Company, as its representative on the ASA Standards Council. Colonel Andrews succeeds Martin Schreiber, whose term expires December 31.

R. H. Stier, engineering assistant to the vice-president on operation, of the Philadelphia Rapid Transit Company, has been named as Colonel Andrews' alternate.

Television Engineers Consider Standardization Problems

Standardization was the topic of the day at a joint meeting of the Institute of Radio Engineers and the Radio Manufacturers Association at Rochester, N. Y., during the week of November 13. The meeting was called to consider the fast-developing prospects for television service in the near future. Three of the six major problems connected with the practical application of television, discussed at the meeting, had to do with problems of standardization. They were:

1. What standard name shall be given the picture tube in television sets? It is now variously known as the picture tube, the television tube, the cathode ray tube, the kinescope, and the image tube.
2. What standard sizes shall be established for these tubes in order to ensure interchangeability? Five-inch and nine-inch tubes are now particularly common, but there are indications that other sizes will be introduced. The problem is one of keeping their number to a minimum.
3. What shall be the standard picture sizes? General opinion among the engineers seemed to be that there should be a standard relation between the size of the picture and the size of the tube. Thus, a nine-inch tube would be expected to produce a five-by-seven picture. It was suggested that there might be a temptation to some less scrupulous manufacturers to let the corners of the picture "fall off" on the curved screen in order that they might claim to provide larger size pictures than the tubes in their sets would ordinarily accommodate.

Other problems not definitely connected with standardization were also discussed:

1. What can be done to secure the maximum of simplicity in the operation of television sets? This is important not only because of the psychology of the customer who expects to buy a set on which he can simply push a button and get a picture but because of the necessity for economical "assembly-line" manufacture and later servicing. This all-important problem raises a whole host of subsidiary questions. Should the manufacturer guarantee the receiver and, if so, for how long? Who should service the receiver? At present, it appears that only the manufacturers will be able to take on this job, but television service men may spring up like the radio service man. In such case, how shall these men be trained, who shall train them, and how shall they be certified?
2. How and by whom shall the sets be installed? To attain any adequate level of entertainment a television set must be capable of receiving a good, strong signal. It is likely that this will be impossible in many areas even after a number of television stations have been established. This would seem to require that surveys be conducted to determine in what areas a reasonable level of service might be expected. Who should make these surveys? Again, should sets be withheld from possible customers in poor-service areas or should they be sold with the warning that the buyer cannot expect too much from his set?
3. What is a television receiver? Is it a set that will reproduce sight images only or should the name be reserved exclusively to those sets capable of providing sight images and the accompanying sound? And what standard terminology shall be developed to identify those all-in-one combination sets which will be capable not only of providing complete television service but of covering the regular and short-wave radio broadcast bands as well?

These questions are pressing at the present time, according to a report of the meeting in *Business Week*, in view of the recent announcement of the Radio Corporation of America that it will institute regular television service in the New York area probably by next April.

ASME Awards Holley Medal To Francis Hodgkinson

Francis Hodgkinson, Honorary Professor of Mechanical Engineering at Columbia University, was awarded the Holley Medal by the American Society of Mechanical Engineers at its annual meeting in New York, December 5-9. Professor Hogkinson, formerly consulting engineer for the Westinghouse Electric & Manufacturing Company, "has contributed more to the development of the steam turbine in this country than any other individual engineer," it was said in presenting the award.

Professor Hodgkinson is active in international electrical standardization, as a member of the U. S. National Committee of the International Electrotechnical Commission, and also as director of the secretariats of the IEC committees on steam turbines, and on internal combustion engines.

Interior Department Appoints Nelson on Standards Council

Wesley R. Nelson, Chief of the Engineering Division, Bureau of Reclamation, U. S. Department of the Interior, has been appointed to represent the Department on the Standards Council of the American Standards Association. Mr. Nelson succeeds John L. Savage as the Department's representative.

British Drill Bushings Follow American Standard Dimensions

THE dimensions approved by the American Standards Association in the American Standard for Jig Bushings are being used by a British manufacturer as his standard dimensions for drill bushings now being supplied to many British engineering companies, according to an article in *Machinery*, London, September 29. The article says:

"British Aero Components, Ltd., Brico Works, Coventry, are specializing in the manufacture of a comprehensive range of standardized drill bushes, which are being supplied in large quantities to many of the best-known engineering firms in the country. These bushes are finished to fine limits and are nitrided, the dimensions conforming to the specifications of the American Standards Association. It is claimed that the nitrided bush gives at least 50 per cent longer life than the corresponding case-hardened or oil-hardened bush.

"Various types of bushes are being produced. Fixed renewable bushes, ground to push fits in the appropriate liners are being supplied for drill sizes ranging from 1/16-inch to $1\frac{3}{4}$ inches, and are used where the quantity of drilling entails replacement of the bushes during the life of the jig.

"The heads of these bushes are milled away to suit the circular heads of the locking screws. Renewable slip bushes to suit drills of the same range of dimensions are supplied for use for a sequence of operations in the same positions in the jig, such as drilling and reaming, and are interchangeable in the liners. The heads of these bushes are milled for bayonet fixing, so that the screw need not be removed.

"Press fit bushes with heads, and headless press fit bushes are also being made for the same range of drill diameters, for use when the life of the jig is not likely to entail bush replacement. These bushes are supplied with the bodies ground to press fit sizes, or, if required, can be made 0.020-inch oversize on the fit diameter. In addition a range of liners is being manufactured for drill bush sizes of from 5/16 inch to $2\frac{1}{4}$ inches, together with the necessary clamping screws for renewable bushes.

"Each individual bush or liner is given a symbol, so that when the jig drawings are being prepared it is only necessary to give the bore size and symbol. Wall charts are available for use in drawing offices, and these give all the various dimensions of the bushes and liners, their limits, and the symbols for ready reference.

"The advantages deriving from the use of standardized drill bushes from the point of view of machine shop production are self-evident. Their use eliminates the expense of bush design and manufacture, the symbol numbers being merely specified on the jig drawings, and the bushes ordered from stock. In addition, uniform accuracy and hardness eliminates many of the troubles frequently associated with the use of drill bushes in the factory.

"It may be noted that the usual hardness of the nitrided steel bushes is 1,100 VDN."

NEMA Releases Standards For Vulcanized Fibre

The National Electrical Manufacturers Association announces the release of a new standard entitled "NEMA Standards for Vulcanized Fibre, Publication No. 38-51." It contains information on standard grades of vulcanized fibre; standard colors; dimensions of vulcanized fibre sheets, blocks, rods, and tubes; and mechanical and electrical tests for all standard grades.

All the latest standards on this type of product that have been approved by this Association have been included. This publication supersedes a previous edition numbered 35-29 which was published in 1935.

Copies may be obtained from the National Electrical Manufacturers Association, 155 East 44th Street, New York, for 25 cents each.

SAE Accepts Standard For Abbreviations

The new style sheet just prepared by the Society of Automotive Engineers to assure uniformity of usage in its *SAE Journal* recommends the use of the standard abbreviations approved by the American Standards Association.

The American Tentative Standard Abbreviations for Scientific and Engineering Terms was approved by the American Standards Association in 1932. Copies of the standard (Z10i-1932) are available from the ASA at 40 cents each.

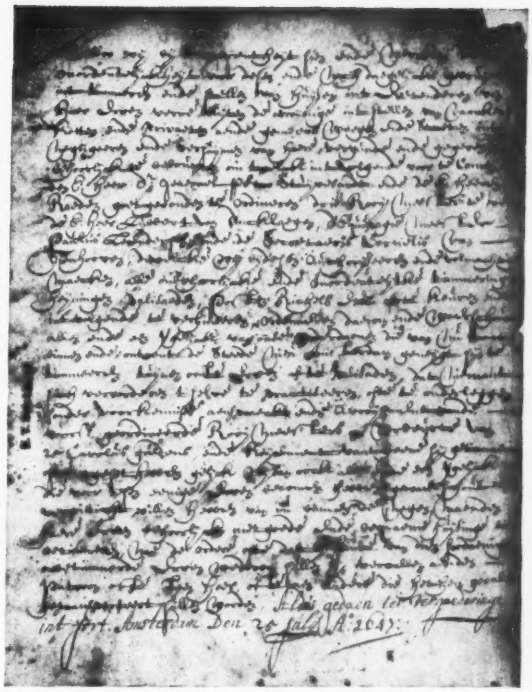
ASA Building Committee Plans Program Covering All Phases of Codes

Work covering practically all subjects customarily treated in building codes has now been assigned to sectional committees, the Building Code Correlating Committee which heads the building code program of the American Standards Association reported to the Standards Council at the Annual Meeting. There are now 14 projects covering various phases of building code work. Only one important subject, Building Code Requirements for Reinforced Concrete, remains to be organized, and negotiations have already been started for a project on this subject.

The 14 building code projects now under way cover building code requirements for:

Chimneys and heating appliances
Building exits
Excavations and foundations
Fire extinguishing equipment
Fire protection and fire resistance
Grandstands
Gypsum concrete
Iron and steel
Light and ventilation
Minimum design loads
Masonry
Signboards
Wood
Administrative requirements

Rudolph P. Miller, chairman of the Building Code Correlating Committee, reported to the Standards Council for the BCCC. Other officers are: George N. Thompson, National Bureau of Standards, Vice-Chairman; H. M. Lawrence, American Standards Association, Secretary; and J. H. Courtney, Technical Secretary.



Courtesy Civil Engineering

The Earliest Building Regulation in What Is Now The United States Was Dated July 25, 1647

Translation (Abridged): "Whereas we see the irregularity in building of Houses, in extending of Lots far beyond the survey line, in setting up Hog pens and Privies on the highways; the Hon'ble Council have Resolved to appoint three Street surveyors whom we empower to condemn and in future to stop all unsightly and irregular Buildings, etc. Therefore, we Order and warn all our Subjects who are inclined to build on or inclose any Gardens or Lots within or near the city *New Amsterdam*, not to proceed without survey by the aforesaid Surveyors, under a fine of 25 Carolus guilders and the abatement of what we have set up."—From Laws and Ordinances of New Netherland, 1638-1674, Compiled and Translated by E. B. O'Callaghan (1868). Original Document Is in New York State Library at Albany.

Recommendation for Paper Forms Has Been Republished

Printed copies of Simplified Practice Recommendation R37, Commercial Forms, are again available, the Division of Simplified Practice, National Bureau of Standards, announced. The recommendation covers the standard invoice, purchase order, and inquiry forms.

The Standing Committee of the industry, working under the procedure of the National Bureau of Standards, reviewed the recommendation in 1938, and found that no changes in the forms were needed. The new issue therefore continues the forms which were approved in 1927, and reaffirmed in 1931 and 1934.

Copies of the new edition, Simplified Practice Recommendation R 37-38, may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C. at 10 cents each.

NEW

The American Standard Specifications for Gypsum Plastering Including Requirements for Lathing (A42.1-1938)

Provides a yardstick for quality plastering for the Building Trades

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- **general and special requirements for gypsum plastering**
- **requirements for sand and for proper drying**
- **instructions for mixing various types of gypsum plaster**
- **specifications for plastering on monolithic surfaces**
- **instructions for finishes and for applying different thicknesses of plaster on different types of bases**
- **a separate section on lathing**

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